

Practical Method for Mix Design of Cement Based Grouting

Author(s)

I. Satyarno, A. P. Solehudin, C. Meyarto, D. Hadiyatmoko, P. Muhammad, and R. Afnan
Department of Civil and Environmental Engineering Gadjah Mada

Abstract

Cement based grouting materials are made of mixed water and cement which are sometimes also added with sand and admixtures. These materials are commonly used for repairing the damages on buildings components, for soil treatment, or for the construction of preplaced aggregate concrete. In the application the grouting materials are placed by injection method with or without pressure so that they shall have good flow ability beside they have to comply with the required mechanical properties such as compressive and tensile strengths. However, currently there is hardly any available practical method can be used to carry out the mix design of the grouting. Therefore a research study has been carried out to develop a practical method for carrying out the cement based grouting mix design. The research carried out study on varieties of water, cement, and sand proportions. Grouting flow ability is measured using flow cone method according to ASTM-C939, while the studied mechanical properties are compressive and tensile strengths. The proposed practical method to carry out cement based grouting material mix design uses some graphics and or empirical equations which are derived from trendline analyses of the laboratory test results data to simplify the mix design process.

Keywords :-